

## ABSTRACT

Torque ripple of a motor due to a rotation detection device is reduced. A periodicity gain multiplier 51 multiplies the rotation angle  $\theta$  of a detection target by a ripple periodic number  $m$  per rotation of the detection target. An adder 53 adds a phase adjusting value " $\psi$ " from a phase adjustor 49 to the value " $m\theta$ ". The value " $\sin(m\theta + \psi)$ ", which is calculated by a sine calculator 55, is multiplied by a predetermined gain  $G$  by an amplitude adjustor 57 and by the angular velocity  $\omega$  of the detection target by a multiplier 59. A subtractor 61 subtracts the output of the multiplier 59 from the value " $\omega$ " and outputs " $\omega(1 - G\sin(m\theta + \psi))$ ". The output of the subtractor 61 and the output " $m\theta + \psi$ " of the adder 53 are input to the phase adjustor 49 and amplitude adjustor 57. The phase adjustor 49 calculates the phase adjusting value " $\psi$ " based on the summation of the derivative values of the outputs from the subtractor 61 sampled for each " $\pi/2$ " of the output from the adder 53. The amplitude adjustor 57 calculates the gain  $G$  based on the summation of the differences between averages of the sampled values at "0" and " $\pi$ " of the output of the adder 53 and averages of the time integration value at the integral interval of "0" to " $\pi$ ".